



Molecules in Motion

And the Particle Theory

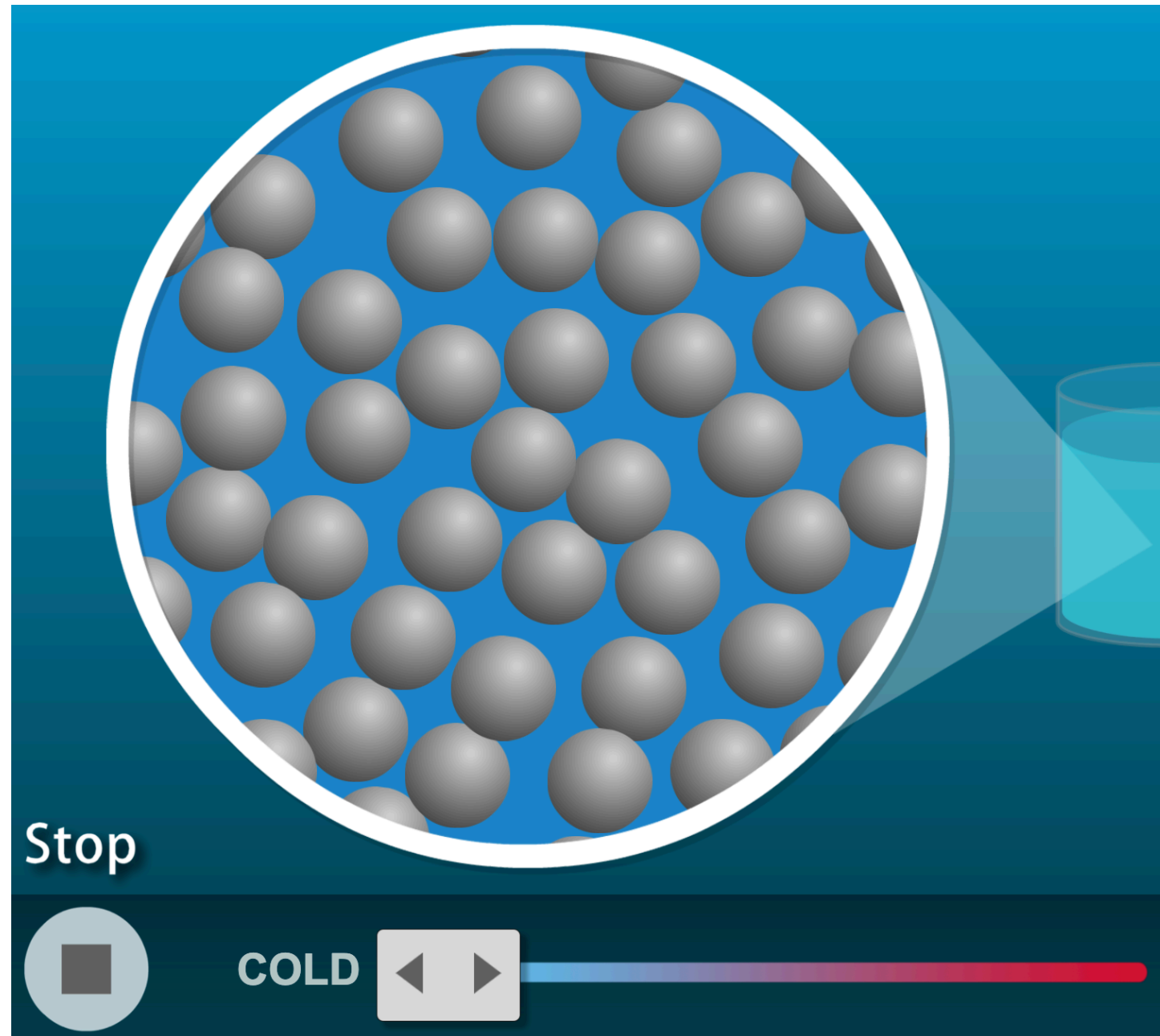
Water in Space

- <https://www.youtube.com/watch?v=Z2Jh9KyvJqg>
- <https://www.youtube.com/watch?v=KFPvdNbftOY>
- <https://www.theguardian.com/science/video/2014/nov/07/water-bubble-space-science-video>

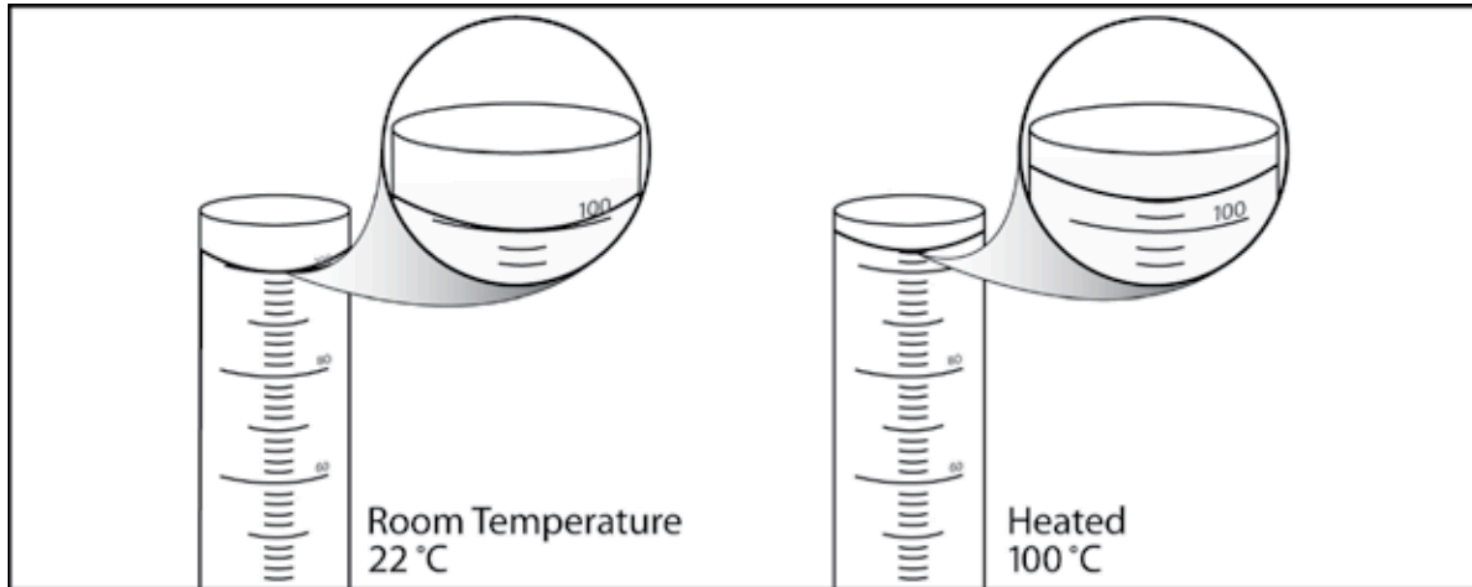


Heating and Cooling a Liquid Animation

- https://www.middleschoolchemistry.com/html5_animations/heating_and_cooling_a_liquid/



Let's say that you measure exactly 100 milliliters of water in a graduated cylinder. You heat the water to 100 °C and notice that the volume increases to 104 milliliters.



**Why does
the volume
increase?**

The background features a stylized thermometer with a red liquid column. A circular inset on the right shows a magnified view of red particles. The top half of the particles are dark red and densely packed, while the bottom half are light pink and more spread out. A white rectangular box with a thin border is centered over the thermometer's bulb and stem.

Thermometer Animation

https://www.middleschoolchemistry.com/html5_animations/heating_and_cooling_a_thermometer/

A circular button with a square icon, likely a pause or stop control.

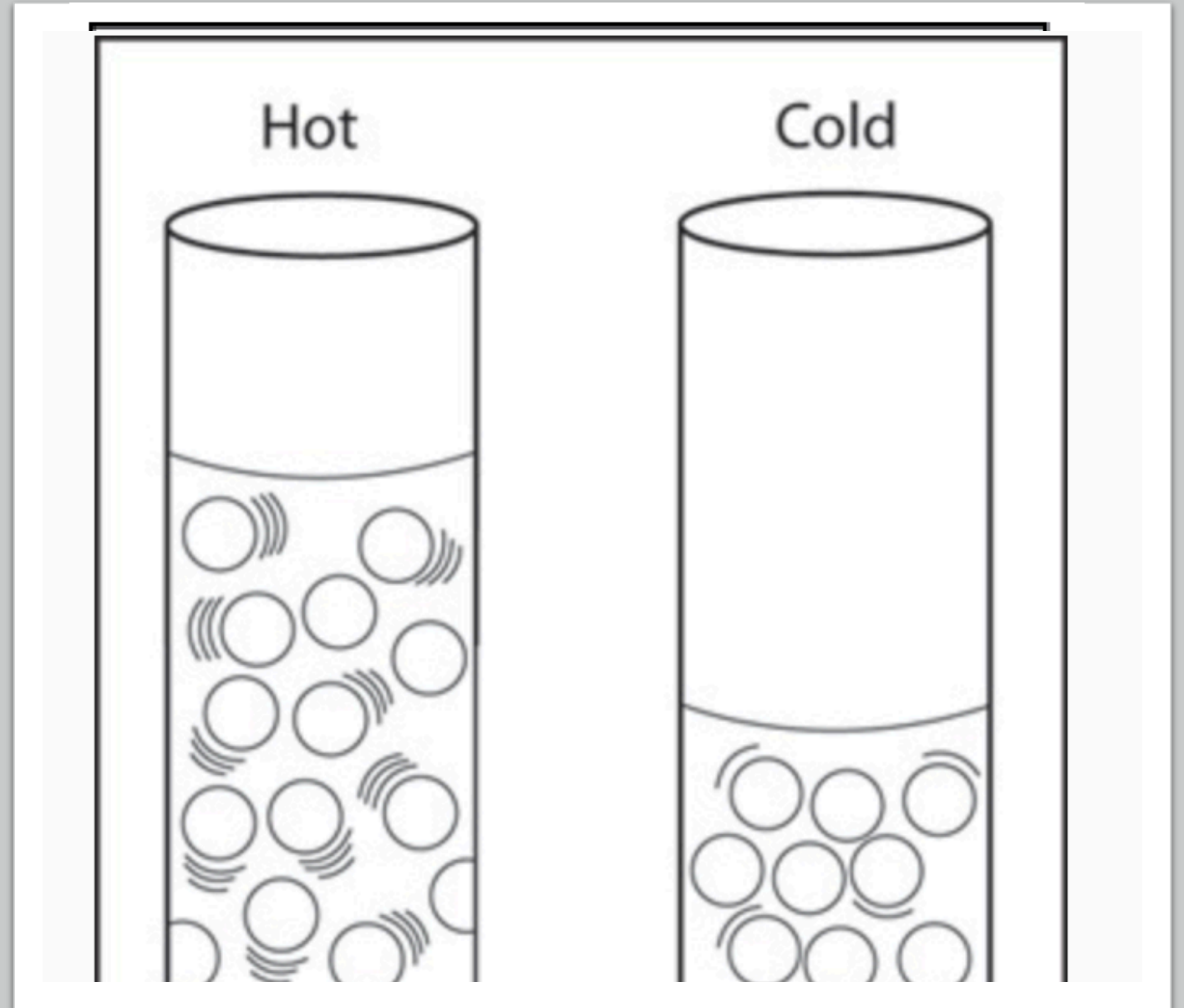
Cold

Room
Temp.

Hot

Molecules in a Thermometer

- Hot
 - randomly arranged
 - moving faster
 - further apart
- Cold
 - randomly arranged
 - moving slower
 - closer together



Particle Theory

- All matter is made up of very small **particles**.
- All **particles** in a pure substance are the same.
- Different substances are made up of different **particles**.
- There is space between all **particles**.
- The **particles** are always moving (KE)
- The **particles** in a substance are attracted to one another.



Homework

- Review for quiz tomorrow
 - Look over the pdf files of the daily PowerPoints
 - Look over notes